

Abstract of the Disclosure

The present invention relates to an optical data storage medium and a device and method thereof; and, more particularly, to an optical data storage medium based on semiconductor luminescence, which is capable of limiting searching and recording of optical data to a certain location in three-dimensional, easy multi-stage data searching, controlling of luminescence wavelength, excellent durability of data, requiring relatively low energy compared to a method of damaging silica, one-time-recording and repeated-searching, and to a device and method for searching for and recording optical data based on the photon absorption effect. The method of recording optical data takes a semiconductor-dispersed-thin layer on an optically transparent medium as a recording layer. Data recorded in a certain layer is searched based on the luminescence property of nanometer-sized crystalline semiconductor by using single-photon or two-photon absorption.

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